

WE CLAIM:

1. An isolated nucleic acid having the nucleic acid sequence of SEQ ID NO:1.

5 2. An expression vector containing the nucleic acid of claim 1.

3. An expression vector of claim 2 wherein said nucleic acid contains at least one intron.

4. An isolated protein encoded for by the nucleic acid of ~~claim 1~~ ^{sequence of SEQ ID NO:1} ₁

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5. An isolated protein of claim 4 having the amino acid sequence of SEQ ID NO:2.

6. A method for detecting susceptibility to basement membrane disease, or the presence of existing basement membrane disease comprising detecting a mutation in a nephrin gene.

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7. A method as in claim 6 comprising detecting a mutation in the nephrin protein.

8. A method as in claim 6 comprising detecting the presence or absence of nephrin protein.

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9. A method as in claim 6 wherein said basement membrane disease is specifically congenital nephrotic syndromes of the Finnish type.

10. A kit for screening individuals for susceptibility to basement membrane disease, or the presence of basement membrane disease, containing at least one nucleic acid probe which detects the nucleic acid of claim 1.

5 11. A method for treating an individual with basement membrane disease comprising administering an effective therapeutic amount of a protein of claim 4.

10 12. A method for treating an individual with basement membrane disease comprising administering an effective therapeutic amount of nucleic acid constructs containing an expressible nucleic acid of claim 1. *sequence of SEQ ID NO: 1*

13. A polyclonal antiserum containing antibodies specific for nephrin protein produced by immunizing an animal with a sufficient amount of the protein of claim 5 to stimulate an immune response.

15 14. A monoclonal antibody specific for nephrin produced by immunizing a rodent with a sufficient amount of the protein of claim 5 to stimulate an immune response, harvesting spleen cells from said immunized rodent, hybridizing said spleen cells with a suitable hybridoma partner, screening resultant hybridoma cells for said specific monoclonal antibody.

20 15. A chimeric antibody comprising the variable domains of the antibody of claim 14 functionally attached to human antibody constant domains.

16. A kit for screening individuals for susceptibility to basement membrane disease, or the presence of basement membrane disease, containing at least one antibody specific for nephrin.

17. A method for identifying a small molecule therapeutic for the treatment of proteinuria
5 associated with kidney disease comprising screening candidate molecules for specific binding to the nephrin protein.

18. A method as in claim 17 wherein said specific binding effects a change in nephrin protein bioactivity.

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